REMARKS

The Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the following remarks.

New claim 21 has been added to the application. Support for new claim 21 may be found throughout the specification. See, for example, page 18, lines 1-6. No new matter has been introduced by the instant amendment.

Claims 1-3, 7-13 and 16-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over European Patent Application 0424556 or European Patent Application 0458470.

The rejection is respectfully traversed.

The present invention provides polyamide resin compositions which have excellent bending modulus of elasticity and heat resistance, a high degree of crystallization even at relatively low molding temperatures, and are capable of providing the molded products with **fine visual appearance**. More particularly, molded products manufactured using resin compositions provided by the present invention have excellent thermal and mechanical properties and surface appearance. Typically, polyamide resins of the invention are capable of maintaining a high gloss finish with minimal surface roughening or change of color tone notwithstanding exposure of the resin to an outdoor environment.

The present invention provides polyamide resins, which are capable of maintaining surface gloss with minimal roughening or color tone change, wherein the polyamide resin composition comprises:

100 parts by weight of a polyamide resin mixture comprising

(A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof; and

(B) 10 to 80% by weight of an aromatic polyamide resin, said aromatic polyamide resin having diamine units comprising **10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units**, and aliphatic dicarboxylic acid units; and

(C) 0 to 300 parts by weight of an inorganic filler,

The inclusion of an aromatic polyamide resin having diamine units comprising 10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units and aliphatic dicarboxylic acid units in the polyamide resins provided by the present invention is an important aspect of the present invention. A comparison of Examples 7-8 and Comparative Examples 4-5 illustrates the technical advantages obtained for polyamide compositions having an aromatic polyamide resin component in which the diamine units comprise 10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units.

Table 1

	Example 7	Example 8	Comp. Example 4	Comp. Example 5
Polyamide 6 resin Y (parts by weight)[1]	70	60	70	60
Aromatic polyamide A (parts by weight)[2]	30	40	-	-
Polyamide MXD 6 (parts by weight)[3]	-	-	30	40
Moldability[4]	○	○	△	×
Glossiness (at 60°)				
Initial	95.0	93.7	92.9	91.5
After 200-hour irradiation	84.2	81.5	78.8	75.5
Color difference	22.7	21.2	25.7	24.0

(1) Polyamide 6 resin Y: NOVAMID 100 7J (trade name) produced by Mitsubishi Engineering-Plastics Corporation; relative viscosity: 2.2.

(2) Aromatic polyamide resin: aromatic polyamide A obtained in Referential Example 1, xylylenediamine mixture consisting of 30 mol% of paraxylylenediamine and 70 mol% of methaxylylenediamine

(3) Polyamide MXD6: produced by Mitsubishi Gas Chemical Co., Inc., prepared from methaxylylenediamine and adipic acid, relative viscosity: 2.14 (measured in 98% sulfuric acid solution at 25°C).

(4) Moldability: polyamide surface condition evaluation: ○ - releasability was good and there was little surface roughening; △ - releasability was rather bad and surface roughening was observed; × - releasability was bad and surface roughening was excessive.

As seen from Examples 7 and 8 of Table 1, polyamides comprising an aromatic polyamide A which contains 60-70 mol% methaxylylenediamine and 30-40% paraxylyxenediamine possess good moldability, high glossiness (both initial and after 200-hour irradiation), and small color differences. In contrast, polyamides shown in Comparative Examples 4 and 5 of Table 1 which contain the aromatic polyamide, MXD 6, which consists of 100% methaxylylenediamine, the polyamides possess poor moldability, reduced glossiness compared to polyamides of Examples 7 and 8 of the present invention (both initial and after 200-hour irradiation), and color difference is large.

Thus, by providing polyamides having 10-80% by weight of an aromatic polyamide resin in which 10 to 50 mol% of the diamine repeat units are paraxylylenediamine units and 50 to 90 mol% of the diamine repeat units are methaxylylenediamine units, the present invention provides polyamide compositions which are capable of maintaining a high gloss finish with minimal surface roughening or change in color tone notwithstanding exposure to an outdoor exposure environment.

In contrast, EP 0424556 ('556) discloses a molding polyamide resin composition comprising:

(A) 50 to 99 parts by weight of a polyamide resin derived from xylylenediamine as a main diamine component and an alpha,omega-straight chain aliphatic dicarboxylic acid as a main dicarboxilic acid component,

(B) 1 to 50 part by weight of polyhexamethyleneadipamide resin,

(C) **5 to 85 parts by weight, per 100 parts by weight of components (A) and (B) combined, of a thermosetting resin powder having an average particle diameter of 1 to 800 micrometers**, and

(D) 5 to 200 parts by weight, per 100 parts by weight of components (A) and (B) combined, of glass fibers, the total amount of the polyamide resin components (A) and (B) being 100 parts by weight.

As the reference is understood, the '556 application teaches moldable polyamide resin compositions having excellent strength at high temperature, heat aging resistance and thermal resistance in which component C, **the thermosetting resin powder**, is an essential component. See, for example, page 3 lines 39-44 of '556, wherein the document teaches that "The proportion of the thermosetting resin powder (C) used in this invention is 5 to 85 parts by weight, . . . If its proportion is less than 5 parts by weight per 100 parts by weight of the polyamide resins (A) and (B) combined, the strength at high temperatures and heat aging resistance of the resulting composition are only insufficiently improved." Thus, in the '556 application, the thermosetting resin powder having the average particle diameter of 1 to 800 micrometers is essential component. If the thermosetting resin powder is not present in the polyamide resin composition of '556 then the resultant polyamide composition does not possess the superior high temperature strength, heat aging resistance and thermal resistance properties taught therein.

In contrast, the polyamide resin composition of the present invention comprise a polyamide blend of components (A) and (B) which may optionally have an inorganic filler dispersed therein. More particularly, thermosetting resin powders are **not** inorganic fillers and are **not** a necessary component of the polyamide compositions provided by the present invention.

In the '556 application, there is no description nor suggestion of a polyamide composition comprising a blend of (A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof, and (B) 10 to 80% by weight of an aromatic polyamide resin, said aromatic polyamide resin having diamine units comprising **10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units**, and aliphatic dicarboxylic acid units, which may optionally have an inorganic filler dispersed therein. Moreover ,the '556 application neither discloses nor suggests polyamide compositions having an aromatic polyamide component comprising *10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units would possess desirable surface appearance properties including a high gloss finish which resists surface roughening and changes in color tone, notwithstanding exposure of the polyamide to an outdoor environment.*

Thus the polyamide compositions of the present invention would not have been obvious to one skilled in the art based on the polyamide compositions of the '556 application which require inclusion of a thermosetting resin powder having the average particle diameter of 1 to 800 micrometers in order to obtain the desirable performance characteristics disclosed therein.

The European patent application, EP 0458470 ('470), teaches a polyamide resin (A) which is prepared from a melt reaction of 10-90% by weight of a polyamide (A1) composed of xylylenediamine and a C_6-C_{20} aliphatic diacid repeat units with 90-10% by weight of polyamide-6 (A2) to form a block copolymer comprising regions of polyamide (A1) and polyamide (A2). The polyamide resin (A) taught by the '470 application possesses either:

1. A single glass transition temperature differing from those of (Al) and (A2), or
2. Two glass transition temperature both differing from those of (Al) and (A2), the difference between the two temperature being less than 10°C, (the glass transition temperature being measured by the DSC process at a temperature rise rate of 20°C/min).

The '470 application provides, on page 3, lines 1-38, preferred melt reactions and reaction conditions for the preparation of block polyamide copolymers disclosed therein: "The polyamide resin (A) of this invention is composed of a molten reaction mixture obtained by melting MX nylon (A1) and polyamide-6 (A2) *under specific (temperature and time) conditions* to cause their reaction, said resin having a specific glass transition temperature or temperatures." . . . "With progress of the reaction, the difference in glass transition temperature of MX nylon and polyamide-6 becomes increasingly less and at a certain point of time the mixture comes to have a single glass transition temperature."

As seen from the above description, the polyamide resin (A) of the '470 application is a reaction product of a polyamide (A1) obtainable from xylylenediamine and a C_6-C_{20} α,ω-linear aliphatic dibasic acid and polyamide-6 (A2). Thus, the polyamide resin of the '470 application is a reaction product, e.g., a polyamide copolymer, produced by specific method, not a ordinary polyamide blend.

The EP 0458470 application teaches a polyamide resin for molding, which is excellent in impact resistance, mechanical strength, dimensional stability, chemical resistance and processablity.

Notwithstanding the disclosure in the '470 application that fillers may be added to preformed polyamide resin (A), i.e., the polyamide copolymer reaction product, the '470 application neither discloses nor suggests polyamide resin compositions comprising a blend of

100 parts by weight of a polyamide resin mixture comprising

(A) 20 to 90% by weight of a polyamide 6 resin, a polyamide 66 resin or mixture thereof; and

(B) 10 to 80% by weight of an aromatic polyamide resin, said aromatic polyamide resin having diamine units comprising 10 to 50 mol% of paraxylylenediamine units and 50 to 90 mol% of methaxylylenediamine units, and aliphatic dicarboxylic acid units; and

(C) 0 to 300 parts by weight of an inorganic filler,

Accordingly, claims 1 and 16 are patentable over the teachings of the '556 application, the '470 application, or any combination thereof. Claims 2, 3, 7-13 and 17-20 depend from claim 1 and are therefore also patentable over the teachings of the the '556 application, the '470 application, or any combination thereof

Although it is not believed that any additional fees are needed to consider this submission, the Examiner is hereby authorized to charge our deposit account no. 04-1105 should any fee be deemed necessary.

Respectfully submitted,

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John B. Alexander (Reg. No. 48,399)
EDWARDS & ANGELL, LLP
Dike, Bronstein, Roberts & Cushman
Intellectual Property Practice Group
P. O. Box 9169
Boston, MA 02209
Tel: (617) 439-4444
Fax: (617) 439-4170 / 7748

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VERSION WITH MARKINGS TO SHOW CHANGES TO CLAIMS

Please note that additions to the claims are shown underlined and deletions are shown in brackets.

IN THE CLAIMS:

Kindly add new claim 21, as follows:

21. (New) The polyamide resin composition according to claim 1, wherein a molded article obtained from molding the polyamide resin composition at between 70°C and 90°C by a #3000 mirror-polished mold has a glossiness of the surface of not less than 80%.